

# Soyfoods Guide

The background features a bowl of white rice with a red floral pattern. The foreground shows a plate of stir-fried ingredients including broccoli, red bell peppers, yellow bell peppers, and cubed tofu. A metal spoon is visible on the right side of the plate.

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# Soybean Oil

## ...more than you know

Although this *Soyfoods Guide* contains information primarily about soy protein, another major component of the soybean, soybean oil, is one of the top two most frequently used cooking oils in the country. In fact, most “vegetable oil” sold at the grocery store is really soybean oil – just check the ingredients on the label to be sure!

Liquid soybean oil is relatively low in saturated fat and high in poly- and monounsaturated fats, contains zero grams of trans fat, and is cholesterol-free. It is also one of the few non-fish sources of omega-3 fatty acids. While the long-chain omega-3s found in fish are preferred for bioavailability, soybean oil is the principle source in the U.S. diet. These polyunsaturated fatty acids positively affect overall cardiovascular health, including reducing blood pressure and preventing heart disease. Research is underway to develop an increased omega-3 soybean oil, for a renewable source of this essential fatty acid.

A new science advisory from the American Heart Association recently concluded that omega-6 fatty acids found in soybean oil may decrease risk for heart disease. A meta-analysis of several trials indicated that replacing saturated fats with omega-6s lowered heart disease risk

by 24 percent. Soybean oil is about 50 percent omega-6 fatty acids, while olive oil and canola oil are both low in omega-6s. The advisory recommends Americans aim for 5-10 percent of their daily calories from omega-6s (12-22 grams) depending on age, gender and physical activity.

Although liquid soybean oil is used in a number of products, including salad dressings, cooking oils, and some brands of margarine, other food applications require a more solid form of oil for increased stability and texture. Partial hydrogenation is the process of rearranging the chemical structure of a liquid oil to make it more solid; unfortunately, it also produces trans fatty acids. Before this was understood, it became very popular in the ‘70s and ‘80s as a replacement for oils that are high in saturated fat, such as lard, tallow and some tropical oils.

The soybean industry is working diligently on creating new varieties of soybeans that will produce more healthful oils that do not require partial hydrogenation. Simultaneously, soybean processors are developing new oil-processing techniques that allow for food manufacturers to announce their products contain zero grams of trans fat.

The first soy-based trans fat solution to enter the market is low-linolenic soybean oil, which may be used in light frying applications, sauces, rolls and pizza dough. Coming soon, increased oleic soybean oils will offer additional trans fat solutions for baked goods.

Further in the research pipeline are low-saturate and high-stearic soybean oils. Research indicates stearic acid may be cholesterol-neutral compared to other types of saturated fats. It’s highly stable and neutrally flavored, ideal for a wide range of products.

The U.S. Dietary Guidelines, developed jointly by the U.S. Department of Agriculture and the U.S. Department of Health and Human Services, recommend keeping total fat intake to in between 20-35 percent of calories, with most fat coming from poly- and monounsaturated fats and minimal intake from saturated and trans fats. Additionally, the American Heart Association suggests keeping saturated fat less than 7 percent and trans fat less than 1 percent of total daily caloric intake. For these reasons, liquid soybean oil is an excellent heart-healthy choice, as part of an overall healthy eating plan with plenty of exercise.



The Soyfoods Guide is distributed by the United Soybean Board (USB) with support from state soybean checkoff boards in Alabama, Arkansas, Delaware, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Maryland, Michigan, Minnesota, Mississippi, Missouri, Nebraska, New Jersey, North Carolina, North Dakota, Ohio, Oklahoma, Pennsylvania, South Carolina, South Dakota, Tennessee, Texas, Virginia, and Wisconsin. The United Soybean Board is made up of 64 farmer-directors who oversee the investments of the soybean checkoff on behalf of all U.S. soybean farmers. Additional soyfoods information is available at [www.soybean.org](http://www.soybean.org).

Recipe creation, food stylists & photography: Kim Galeaz, R.D., Indianapolis, IN, United Soybean Board, Illinois Center for Soyfoods, and Stevens & Associates, Inc.

The publisher and editors are not liable for errors or omissions.

Publisher: Stevens & Associates, Inc., 4816 N. Pennsylvania St., Indianapolis, IN 46205-1744

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Mark Messina

## The 8<sup>th</sup> International Symposium on the Role of Soy in Health Promotion and Chronic Disease Prevention and Treatment

*By Mark Messina, PhD, Adjunct Professor, Department of Nutrition, Loma Linda University, and president of Nutrition Matters, Inc.*

A four-day symposium on soy and health took place in Tokyo November 9-12, 2008 and was attended by more than 250 scientists and health professionals from 20 countries. More than 70 presentations provided information and research findings on some of the more contentious and important issues surrounding soyfoods today.

The first meeting of this type was held in 1994 in Mesa, Arizona at a time when soyfoods research was still in its infancy. That meeting generated far more interest in this field than anyone expected. Since that time, there have been seven more symposia and more than 10,000 scientific papers have been published on soy.

This research has produced exciting information about potential health benefits. However, when any food—even the most benign fruit or vegetable—is investigated to this extent, there are always some studies that don't agree with the majority of research. No individual study can provide conclusive evidence about a food or dietary substance.

With soy, as with all foods, it is important to look at all of the evidence and at what the majority of studies find. When the totality of the evidence on soyfoods is viewed, there is little question about the value of adding these foods to the diet. While there has been discussion on the internet and in some magazines questioning the healthful properties soyfoods, the information presented at the Eighth Symposium has made important contributions to our understanding of these concerns.

### Breast Cancer

Soyfoods contain isoflavones, which are classified as phytoestrogens (plant estrogens). There have been many questions about whether these foods should be avoided by breast cancer patients and women at high risk of developing breast cancer. Fears are that the estrogen-like effects of isoflavones might stimulate the growth of existing estrogen-sensitive tumors.

Approximately two-thirds of women with cancer have tumors that respond to estrogen. But while tumors in animal studies are stimulated by isoflavones, these kinds of studies can't serve as the basis for nutrition recommendations

for humans. Often, effects seen in animals are not the same as those in humans, and that's the case with isoflavones and breast cancer. In human studies, isoflavones don't have stimulatory effects on breast tissue.

Research presented at the symposium supports the safety of soyfoods for women with breast cancer. Scientists from Vanderbilt University and the Shanghai Cancer Center studied more than 5000 women with breast cancer for about 2½ years. They found that soyfood intake was actually associated with improved survival rates. That is, those who

“...those who consumed higher amounts of soyfoods were less likely to die or suffer a relapse than those who consumed little soy.”

consumed higher amounts of soyfoods were less likely to die or suffer a relapse than those who consumed little soy. Women with estrogen-sensitive tumors benefited the most. And, although animal studies have raised the concern that soy could interfere with breast cancer drugs like tamoxifen, no such negative effect was seen in this study.

Epidemiologic studies of this type can't show cause and effect, but this one does help negate the idea that soy is harmful for women with breast cancer. While the Chinese breast cancer patients in this study were monitored for a relatively short-term follow-up period, this study is ongoing and should produce more definitive data in the near future. If future data confirm these early findings, they may go a long way toward resolving the soy and breast cancer controversy. For now, the position of the American Cancer Society is that women with breast cancer can safely consume up to three servings of traditional soyfoods like tofu and tempeh, per day.

*Continued on next page*

### Cholesterol Reduction

In 1999 the Food and Drug Administration (FDA) approved a health claim for soy protein and coronary heart disease. This came after the FDA reviewed a large number of clinical studies and concluded that soy protein lowers blood cholesterol. Since then, however, studies have raised questions about how effective soy protein is in this regard. Not surprisingly, there was quite a bit of interest in this topic at the symposium.

Among the studies presented was the most comprehensive analysis to date of all the relevant findings published from 1978 to the present. The studies reviewed were classified according to the strength of their design. Of the 152 studies evaluated, 47 were judged to be of good quality.

“In addition to providing omega-6 fatty acids, soybeans are also among the few plant foods that provide the omega-3 fat, *alpha-linolenic acid*.”

An analysis of these studies revealed that soy protein lowered LDL-cholesterol (the bad cholesterol) by about five percent.

Part of the reason for the current debate over soy and cholesterol is that earlier studies found a much greater cholesterol-lowering effect of soy protein. According to older analyses, soy protein reduced blood cholesterol by as much as 13 percent. In comparison to those findings, a five percent reduction is obviously far less pronounced. But, in fact, it could be enough to reduce heart disease risk by 15 percent over time. And, although the information was not presented at the symposium, there is growing evidence that soyfoods may have other beneficial effects on heart disease risk by reducing blood pressure and improving the overall health of the arteries.

Soybeans are also good sources of two different healthful fats. The main type of fat in soybeans is the omega-6 fat *linoleic acid*. This is a polyunsaturated fat that can help lower blood cholesterol. But it has also been the subject of some debate over the past years because it serves as the substrate for another type of fat that some claim can increase inflammation. Pro-inflammatory compounds are thought to raise risk for heart disease. Linoleic acid may also inhibit

production of fats that counter inflammation. However, these concerns have been rejected recently by the American Heart Association, which recommends that people get adequate omega-6 fats. Soyfoods are one of the most healthful and easiest ways to do so.

In addition to providing omega-6 fatty acids, soybeans are also among the few plant foods that provide the omega-3 fat, *alpha-linolenic acid*. This essential fatty acid is also thought to reduce heart disease risk.

### Reproductive Effects in Men

Since soyfoods contain phytoestrogens, it is natural to ask questions about the effect soyfoods might have on men and their hormone status.

A recent study from the Harvard School of Public Health raised the possibility that soy consumption could lower sperm concentration. This was a small pilot study, however, and because it was an epidemiologic study (as noted previously), it can't show “cause and effect.” In addition, the total amount of sperm produced didn't actually decrease that much. Much of the reduction in sperm *concentration* occurred because the men experienced an *increase* in the amount of semen produced.

Two clinical studies presented at the symposium assessed the impact of soy intake on both sperm and semen parameters. In one, 32 healthy young men consumed diets that were supplemented with milk protein or soy protein with either low or high isoflavone content. In random order, subjects consumed each of these diets for 57 days. None of the diets had any effects on semen volume, sperm concentration, sperm count, sperm motility or sperm morphology.

In the second study, 20 men were divided into three different groups. The men in the groups received 160, 320, or 480 milligrams of isoflavones each day for three months. Since men in Asia typically consume around 40 milligrams of isoflavones daily, and one serving of soyfoods provides around 25 milligrams, the amounts used in this study were far above what people could normally consume. Again, there were no significant differences in semen volume, sperm concentration, count or motility of sperm. These results support findings from a previously published 2-month study which found isoflavones had no effect on sperm or semen. In fact, a case report published in 2004 actually found that, when the male partner of an infertile couple consumed 80 milligrams of isoflavones every day for six months, his sperm count increased and the couple was able to conceive.

There have also been concerns, based mostly on animal studies but also a couple of human studies, that soy

might lower testosterone levels in men. However, the first systematic review of the effects of soy and isoflavones on reproductive hormones in men was presented at the symposium by Dr. Jill Hamilton-Reeves from the College of St. Catherine in Minneapolis. Dr. Hamilton-Reeves and her colleagues looked at the results of 32 studies, involving 608 subjects. They analyzed the results in several different ways and always came up with the same conclusion: Neither soy protein nor isoflavones had an effect on reproductive hormones, including testosterone. Furthermore, soy exposure in many of these studies was much higher than typical Japanese intake.

### Mineral Balance

Nutritionists have voiced concern that iron status might be compromised when soyfoods replace meat in the diet. Although soybeans are high in iron, this mineral is generally thought to be absorbed to a lesser extent from plant foods than from meat. Newer research suggests, however, that older methods used to evaluate iron absorption from soyfoods may have underestimated absorption rates.

Research from Iowa State University, which was presented at the symposium, used a creative design to examine the impact of soy on both iron and zinc status. They asked young women to consume two to three servings a day of either soyfoods or animal products, with the items matched for type. That is, some women consumed soy burgers instead of hamburgers and soymilk rather than cow's milk. Their intake was tightly controlled over a 10-week period. The results showed that soy consumption had no significant effects on iron or zinc status.

### Equol: A New Area of Research

The symposium included a special session devoted to a soy metabolite called *equol*. While this compound may not be familiar to most soy enthusiasts, it has garnered a great deal of attention lately among scientists.

Equol is produced from the metabolism of one of the isoflavones daidzein, by bacteria in the intestines. But not everyone produces equol. In fact, only about 25 percent of westerners have the bacteria that produce this compound.

The way in which people metabolize isoflavones is of great interest to researchers because it varies dramatically. Individuals can consume the exact same amount of a soyfood or isoflavone supplement and end up with significantly different levels of isoflavones in their blood hours later. The same differences can occur with other dietary compounds and also with drugs. But the variations are especially pronounced in the case of isoflavones. Researchers have sug-

gested that some of the inconsistent results found in studies of soy isoflavones might be due to these individual variations in isoflavone metabolism.

The ability to produce equol from isoflavones is of particular interest, because equol appears to be much more biologically active than the isoflavone from which it is made. As a result, in 1992, the *equol hypothesis* was proposed. It states that people who possess equol-producing bacteria are more likely to benefit from consuming soyfoods than those who don't have those bacteria.

The equol hypothesis is still speculative since there has been relatively little research in humans in this area. But scientists have been looking at data from completed studies to see if the hypothesis holds. They are examining whether the effects of isoflavones were different in subjects classified as equol-producers compared to those who don't produce equol. One serious limitation to this approach is that many clinical studies have a relatively small number of subjects—and we would expect only about 25% of those subjects to produce equol, just like in the general population. That leaves too small a number of equol producers in

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most studies to provide sound conclusions.

Recently, however, an equol supplement for use in research has become available. The first study to use this supplement showed that it alleviated a variety of menopausal symptoms. Much more should be known about equol within the next few years.

### Conclusion

As shown by the number of studies presented at this symposium, investigation of the health effects of soy remains a very active field more than 20 years after the scientific community first began to appreciate the potential health benefits of soyfoods. The findings come from some of the top soy researchers in the world, and they support the body of research showing that soy is safe. Concerns about soyfoods are based mostly on misconceptions about the science. Soyfoods are among the many nutritious plant foods that can play a role in a healthful diet.



Kim Galeaz

## A to Z: Balanced Nutrition for Healthy Kids Soyfoods Fit Right In

By Kim Galeaz, a registered and certified dietitian, freelance nutrition and culinary consultant based in Indianapolis, Indiana

One of the hottest food and nutrition issues right now is nutrition for kids. It's so hot in fact, that when the National Restaurant Association released their Chef's Survey: *What's Hot for 2009*, two of the top ten items on the list were about kids' dishes. Nutritionally balanced children's dishes and fruit/vegetable children's side items placed fourth and sixth, respectively,

“...at home, parents can include more nutrient-rich soyfoods for breakfast, lunch, dinner and snacks.”

out of 210 trendy items. Over 1600 chefs across the US were polled for this annual survey and healthful eating was definitely a priority, because nutrition/health as a culinary theme ranked eleventh.

Soyfoods are one of many solutions for balanced children's dishes, veggie side items and a healthier culinary theme in foodservice. Chefs can offer more edamame side dishes on the menu at family-friendly restaurants. Schools can continue to offer soymilk and soynut butter as choices. And at home, parents can include more nutrient-rich soyfoods for breakfast, lunch, dinner and snacks.

The goal for parents, grandparents, uncles, aunts and caretakers should be more than just encouraging healthy eating, though. It should be helping children develop healthy habits with food that will last a lifetime.

This alphabet soup list contains practically every component needed to grow and nurture a healthier future generation.

### A = Attitude & All Foods Fit

We need to teach children to have a healthy attitude toward food, which means treating food not just as fuel for the body and a way to prevent sickness, but as an enjoyable, pleasurable part of life filled with delicious flavors. The main focus should be on nutrient-rich foods, those foods providing substantial amounts of vitamins, minerals and nutrients for their calories. With a healthy food attitude, all foods fit, so fun foods (cake, cookies, soy dairy-free ice cream bars) are perfectly okay in moderate portions. Treats are enjoyed “in addition to” nutrient-rich foods, not “instead of.” This is the concept of balance. Nutrient-rich foods include whole grains, fruits, vegetables, dairy foods, soyfoods and lean proteins. [www.nutrientrichfoods.org](http://www.nutrientrichfoods.org)

### B = Beans & Breakfast.

Dried, canned or frozen beans are filled with fiber, protein and numerous disease-fighting nutrients. Serve Cuban-style black soybeans with brown rice, add kidney beans and yellow soybeans in chili and burritos and toss edamame in stir-fries. Soybeans actually contain more protein than other beans and this protein may help reduce breast cancer, prostate cancer and heart disease risk. Find great soybean recipes at [www.soyconnection.com](http://www.soyconnection.com).

Breakfast is critical to peak performance at school. Scientific studies continue to indicate that breakfast eaters are more alert, better able to concentrate, solve problems more easily and have better muscle coordination. Making breakfast a priority will set the stage for lifelong weight maintenance, because kids who eat breakfast are less likely to be overweight. Soy at breakfast is fast, easy and kid-friendly: vanilla soymilk over soy cluster cereal, soy cheddar cheese slice on a toasted whole grain bagel or a soy waffle with strawberries.



## **C = Carbohydrates**

More of the nutrient-rich kind. All carbohydrates provide energy, but the nutrient-rich ones – milk, fruit, vegetables, soybeans, other legumes and whole grains – also contain vitamins, minerals and other nutrients. Simple carbohydrates like sugar and honey just contain calories. But since “all foods fit,” they’re fine in small portions.

## **D = Dairy & Milk Products**

Calcium-fortified soymilk, soy yogurt and soy cheese alternatives are all part of this protein and calcium-rich, bone-building group. Dairy products are also a good source of potassium and research continues to support potassium’s role in reducing the risk of high blood pressure. Fruits and vegetables, including yellow, black and green soybeans, are also good sources of potassium. Family-friendly dairy recipes and snack ideas are at [www.3aday.org](http://www.3aday.org).

## **E = Eggs**

Ongoing research has vindicated eggs from past misconceptions, so adding nutrient and protein-rich eggs to every child’s eating plan provides numerous health benefits. Egg nutrients play a role in weight management, muscle strength, brain function and eye health. Some of the latest research shows that eggs eaten at breakfast with other lean protein, like Canadian bacon, can increase feelings of fullness and possibly help with weight loss efforts. Other lean protein breakfast meats to pair with eggs include soy sausage patties and links and soy bacon.

## **F = Fiber**

Fruits, vegetables, soybeans and many soyfoods, nuts, seeds and whole grains are good sources of insoluble fiber, which promotes a healthy digestive system and helps with weight loss and maintenance. Apples, peas, barley and oats contain the other type of fiber, soluble, that can help lower cholesterol and reduce heart disease risk. For kids one to three years old, the Institute of Medicine advises 19 grams total fiber a day and 25 grams for kids ages four to eight. Everyone else needs at least 25 grams daily.

## **G = Good Fats**

Vegetable oils like soybean, canola and olive contain better-for-you polyunsaturated and monounsaturated fats that contribute to heart health. Most soyfoods made with soy ingredients such as textured soy protein, whole soybeans, soybean flour and soy protein isolate, contain very little saturated fat, the type that increases risk of heart disease. If kids are eating mostly nutrient-rich foods and very few

purchased snack foods like cookies and cakes, they’ll keep harmful trans fats to a minimum as well.

## **H = Hydration**

Kids are more vulnerable to dehydration than adults, so it’s good to know that all beverages hydrate, not just water. So milk, soymilk, chocolate soymilk, soft drinks, soy smoothies, juice, sports drinks, water, flavored water, coffee and tea all count toward total hydration needs. Beverage calories can add up quickly, so teach kids to balance beverage choices wisely. Kids will love using the Hydration Calculator at the Institute of Medicine/National Academy of Sciences to determine their daily hydration needs. [www.beverageinstitute.org](http://www.beverageinstitute.org)

## **I = Immune Boosting Nutrients**

Eating to boost immunity is exactly like eating nutrient-rich: fruits, vegetables, whole grains, low-fat dairy foods and lean proteins. These foods contain powerful antioxidants and nutrients to keep kids healthy and strong and possibly help ward off colds and flu. While there are dozens of

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nutrients providing immune-boosting properties, some of the best include dark green leafy vegetables like kale, spinach and collard greens and bright orange sweet potatoes and carrots for antioxidant Vitamin A, nuts, seeds, soy nuts, and healthy oils like soybean for Vitamin E, lean pork and beef for zinc and orange juice and many other fruits and vegetables for Vitamin C.

## **J = Juice**

Two types of juice are nutrient-rich beverages for kids, 100% fruit juice and 100% vegetable juice. Juice counts as a fruit or vegetable serving, too. Kids shouldn’t “drink” all their fruits and vegetables servings every day, though, because most juices don’t contain the fiber found in the whole fruit or vegetable.

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### **K = Kid-Sized Portions**

Small children feel overwhelmed with too much food, so dish up age-appropriate servings and let them ask for more if they're still hungry. Teach older kids to be conscious of recommended portion sizes as a way to balance calories. A fun exercise for kids: have them pour their usual amount of cereal in a bowl, measure it and then compare that amount to the recommended serving size on the cereal box Nutrition Facts label.

### **L = Lean Protein Sources**

Protein provides the building blocks of every cell and is necessary for proper growth. Keep kids' hearts healthy by emphasizing lean sources of protein. Six cuts of pork are

and boost immunity. Roasted soynuts – plain, salted, barbecue, wasabi and other flavors – fit right in this category. Make a quick trail mix with whole grain cereal squares, soynuts, chocolate covered soynuts, raisins and dried cranberries. Nut butters, like peanut, almond and soynut butter, are equally rich in nutrients. Many children with peanut allergies can tolerate soynut butter and soynuts.

### **O = Omega-3's & -6's**

Everyone knows about the heart health benefits of Omega 3's, and soybean oil is the leading source of Omega 3's in American diets; however Omega-6 fatty acids are also a beneficial part of a heart-healthy eating plan, according to the American Heart Association. In January, 2009, the AHA issued a science advisory that Omega 6's may decrease heart disease as part of a healthy diet. Soybean oil is about 50 percent Omega-6 fatty acid, one of the most concentrated sources of Omega-6, while some other oils such as canola and olive are low in Omega-6's. The AHA recommends that people aim for at least 5 percent to 10 percent of calories from omega-6 fatty acids. Recommended daily servings of omega-6 depend on physical activity level, age and gender, but range from 12 to 22 grams per day.

**“Beans and legumes, including all soybean varieties, are the only food to be part of two groups, the protein and vegetable groups.”**

lean (less than 10 grams total fat and 4.5 gram saturated fat in a cooked 3-ounce serving; 29 beef cuts qualify. Many types of fish, poultry and soy meat alternatives such as soy burgers and soy hot dogs are also lean. Eggs, fattier fish, nuts and seeds are also nutrient-rich protein options. Beans and legumes, including all soybean varieties, are the only food to be part of two groups, the protein and vegetable groups. Find nutrient-rich recipes for all protein sources at: [www.theotherwhitemeat.com](http://www.theotherwhitemeat.com), [www.incredibleegg.org](http://www.incredibleegg.org), [www.eatchicken.com](http://www.eatchicken.com), [www.beefitswhatsfordinner.com](http://www.beefitswhatsfordinner.com), [www.aboutseafood.com](http://www.aboutseafood.com), [www.soybean.org](http://www.soybean.org) and [www.soy-connection.com](http://www.soy-connection.com).

### **M = MyPyramid**

It's one of the most valuable family-friendly healthy eating resources online today. Kids can create their customized eating plan at [www.MyPyramid.gov](http://www.MyPyramid.gov) based on age, gender and activity level. There's a MyPyramid for Preschoolers (ages 2 to 5), MyPyramid for Kids (ages 6 to 11) and the standard MyPyramid for everyone else. Parents will love the portion size information and tips for eating more nutrient-rich foods.

### **N = Nuts & Seeds**

All nuts and seeds contain heart-healthy fats, fiber, protein and numerous vitamins and minerals to keep kids healthy

### **P = Plenty of Phytonutrients**

Kids will get lots of these disease-fighting, immune-boosting compounds if they eat plenty of plant foods. Phytonutrients, also called phytochemicals, are found only in fruits, vegetables including soybeans, grains and nuts. These naturally-occurring compounds have been found to help curb cancer, protect the heart, reduce inflammation and boost immunity. Soybeans contain a group of antioxidant phytochemicals called isoflavones; genistein and daidzein.

### **Q = Quality Kitchen Time**

Let kids make a mess in the kitchen. Children that help with family cooking end up eating more healthfully. Plus, they'll be more apt to taste tofu and soymilk smoothies if they helped with the preparation. Get started with kid-friendly cooking resources like [www.pork4kids.com](http://www.pork4kids.com), [www.mealsmatter.org](http://www.mealsmatter.org) and [www.fruitsandveggiesmorematters.org](http://www.fruitsandveggiesmorematters.org).

### **R = Role Model Parents**

Too bad “R” is the 18th letter of the alphabet, because Parents being Good Role Models is probably the #1 component for kids eating healthier. Children and teens “do what we do,” so parents need to seriously assess their own eating and mealtime behavior. What food messages are you sending to your kids? Ask yourself: do I serve and eat lots



of fruits, veggies, whole grains, lean proteins and low fat dairy foods? Do I love to try new foods and flavors? Do I get daily exercise? Do I make mealtimes a priority? Be a positive role model for healthier eating.

### **S = Smart Snacks**

Snacks provide necessary calories for growing kids and nutrient-rich choices provide essential vitamins, minerals and phytochemicals along with those calories. Kid-friendly, nutrient-rich soyfood snacks include chocolate soy pudding, soynut butter, strawberry soymilk, soy cheese pizza, soy chicken-style nuggets, nacho cheese flavored soy crisps, apple cinnamon soy crisps and soy cheese slices. Older kids might also enjoy dark chocolate covered soynuts, wasabi soynuts and roasted edamame.

### **T = Time Together for Family Meals**

Research continues to show that families who eat together are healthier. Family meals are positively associated with improving dietary quality (more fruits and vegetables), preventing obesity, enhancing language and academic performance, improving social skills and reducing risk-taking behaviors such as drugs and alcohol. Make it a priority to eat one meal together every day if possible. Meal planning help, printable placemats, games and conversation starters are at [www.togetherfordinner.com](http://www.togetherfordinner.com) and [www.family-mealtimes.org](http://www.family-mealtimes.org).

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**“The best thing a parent can do is constantly introduce a wide variety of fruits, vegetables, whole grains, soyfoods, low-fat dairy and lean protein.”**

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### **U = Unlimited Curiosity**

Help children develop an insatiable curiosity about new foods so they'll always be receptive to new flavors and tastes. Introduce new fruits like Asian pears and starfruit, vegetables like edamame and jicama, and whole grains like whole wheat orzo and couscous.

### **V = Variety**

Kids will get all the vitamins and minerals they need, along with the right balance of carbohydrate, protein and fat if they eat a wide variety of foods. The best thing a par-

ent can do is constantly introduce a wide variety of fruits, vegetables, whole grains, soyfoods, low fat dairy and lean protein.

### **W = Whole Grains**

More is better when it comes to whole grains. At least half your grains every day should be whole because they are nutritionally superior to refined grains. Whole grains contain all three parts of the seed or kernel - bran, germ and endosperm - so they contain all the natural protein, fiber, vitamins and minerals; refining removes many of these components. Magnesium, one of the minerals abundant in whole grains, plays a significant role in bone, brain and heart health. Introduce whole grains at a young age so kids can keep their heart, digestive and immune system healthier and possibly reduce cancer risk. There's a whole grain version of every kid-friendly grain food today: brown rice, whole wheat flour tortillas, whole wheat macaroni, whole grain pizza crusts and whole wheat crackers. Find more whole grain foods and recipes at [www.wholegrainscouncil.org](http://www.wholegrainscouncil.org).

### **X = eXercise**

Physical activity. Play. Sports. Call it whatever you want, but the bottom line is our kids need to move more every day. Regular exercise and eating a nutrient-rich diet go hand in hand. That's why MyPyramid shows the stick person climbing the stairs. Family fitness ideas: walk the dog, play catch in the backyard, swim laps, jump rope, take a bike ride or play a game of Wii bowling or tennis.

### **Y = Yogurt**

Dairy yogurt and soy-based yogurt contain live active cultures. These cultures are “good bacteria” that promote a healthier digestive system and help boost immunity. Beverages and foods with good bacteria are known as probiotics and are safe for children of all ages. Yogurt typically has one or two bacteria, but a cultured milk product called kefir contains far more. Kefir is like drinkable yogurt and is available in dairy or soy-based versions.

### **Z = Zest for Flavor**

Help kids discover the wonders of cooking with spices and herbs that boost flavor in dishes without adding calories, fat or sodium. Spices and herbs are naturally fat and sodium free and many also contain phytochemicals to keep our hearts healthy and boost immunity. In fact, these seven spices contain significant sources of disease-fighting antioxidants: cinnamon, ginger, rosemary, thyme, oregano, yellow curry and red peppers.

# How Soy Fits Into the USDA's Food Pyramid



The Dietary Guidelines for Americans gives science-based advice on food and physical activity choices for health. To see the full 80-page Dietary Guidelines report, go to [www.healthierus.gov/dietaryguidelines/](http://www.healthierus.gov/dietaryguidelines/).

Soyfoods can be an important part of a healthy diet as proscribed by the new USDA food pyramid. Most soyfoods contain no cholesterol, little or no saturated fat, high quality protein, and dietary fiber. Many soyfoods also provide essential vitamins and minerals, such as B vitamins, vitamins A and D, calcium, iron, and potassium.

Soy protein may help to reduce the risk of heart disease by lowering cholesterol and increasing the flexibility of blood vessels. Soybeans also contain important bio-active components that have begun to show promise in relieving menopausal symptoms, maintaining healthy bones, and preventing cancer.



## Grains

- Soy cereal
- Soy grits
- Soy waffles
- Soy pasta
- Soy bread
- Soy flour

Consuming at least three or more ounce-equivalents of whole grains per day can reduce the risk of several chronic diseases and may help with weight maintenance.

Soy flour is part of this group. Substitute up to one-fourth of the total flour in your favorite baked product recipe.

## Vegetables

- Green soybeans (edamame)
- Canned soybeans
- Soynuts

One-half cup of green soybeans (edamame) contains 10 grams of soy protein.

All soybeans are a good source of dietary fiber and isoflavones.

## Fruits

- No soy-based foods in this category.

Any fruit or 100% fruit juice counts as part of the fruit group. Fruits may be fresh, canned, frozen, or dried, and may be whole, cut-up, or pureed.

## Oils

- Soybean oil (also called vegetable oil)

Soybean oil is rich in polyunsaturated fat and contains only minimal saturated fat. Fats, like soybean oil, are needed to regulate your body temperature.

Fats, like soybean oil, help transport fat-soluble vitamins throughout your body.

Soybean oil is a rich source of omega-three fatty acids.

Soybean oil, labeled "vegetable oil," is a good source of the antioxidant Vitamin E.

## Milk

- Soy beverage
- Soy cheese
- Soy yogurt
- Soy ice cream

According to the new USDA food guidelines, protein choices for those who do not consume milk products include calcium-fortified soy beverages, soybeans, soy yogurt, soy cheese, and tempeh.

Soy ice cream products are a part of this group, but do not contain as much calcium or protein as the other soy products in this group.

## Meat & Beans

- Soy burgers
- Soy hot dogs
- Soy nuggets
- Soy burger-type crumbles
- Tofu
- Soynuts
- Canned soybeans
- Green soybeans (edamame)
- Soynut butter

According to the new USDA food guidelines, protein choices in this category include all of the above listed soyfoods.

Soybeans are a source of high-quality protein and include all eight of the essential amino acids.

For more information about soyfoods, visit the web site [www.soybean.org](http://www.soybean.org).

For more information about the USDA Dietary Guidelines Food Pyramid: [www.mypyramid.gov](http://www.mypyramid.gov)

## Soyfoods Composition

soyfood	Calories	Protein (grams)	Fat (grams)	Carbohydrates (grams)	Fiber (grams)	Calcium (Mg)	Iron (Mg)	Zinc (Mg)	Thiamine (Mg)	Riboflavin (Mg)	Niacin (Mg)	Vitamin B (Mg)	Folate (Mcg)	Sugar (grams)	Sodium (Mg)	Phosphorus (Mg)	Potassium (Mg)
Miso (2 tsp)	21	1.1	.61	2.8	.5	7	.27	.33	.01	.025	.086	.022	3	.47	365	15	16
*Soy Burgers (1 burger)	103	10	3	8.3	3.3	-	-	-	-	-	-	-	-	.7	243	-	-
*Soy Cheese, Cheddar, singles (1 slice)	40	4	3	0	0	-	-	-	-	-	-	-	-	0	185	-	-
*Soy Cheese, Mozzarella, singles (1 slice)	20	2	0	3	0	-	-	-	-	-	-	-	-	1	220	-	-
*Soy Chik Pattie (1 pattie)	150	9	6	15	2	-	-	-	-	-	-	-	-	1	570	-	-
*Soy Crumbles (2/3 cup)	70	9.6	.8	5.3	2	-	-	-	-	-	-	-	-	1	256	-	-
Soy Flour, Defatted (1 cup)	33	4.7	.12	3.84	1.8	24	.92	.25	.07	.025	.26	.057	305	-	2	67	238
Soy Flour, Full-fat, roasted (1 cup)	375	29.6	18.5	28.6	8.2	160	4.9	3.0	.35	.80	2.8	0	193	-	10	405	1735
Soy Flour, Low-fat (1 cup)	327	41	5.9	33.4	9	165	5.27	1.0	.33	.25	1.9	.46	361	-	16	522	2262
*Soy Hot Dog (1 dog)	62	11.3	1.5	2.6	3.3	-	-	-	-	-	-	-	-	.3	323	-	-
Soy Protein Concentrate (1 oz.)	94	16.5	.13	8.8	1.6	103	3.0	1.2	.09	.04	0.2	.04	96	-	1	238	624
Soy Protein Isolate (1 oz.)	96	22.8	1.0	2.0	1.6	50	4.1	1.1	.05	.03	0.4	.03	50	-	285	220	23
*Soy Protein, Textured (1/4 cup)	80	12	0	7	4	-	-	-	-	-	-	-	-	3	2	-	-
*Soy Sausage Pattie (1 pattie)	55	7.2	1.5	4.5	1.2	-	-	-	-	-	-	-	-	.8	235	-	-
*Soy Yogurt (8 oz.)	150	5	3.5	24	1	-	-	-	-	-	-	-	-	13	40	-	-
*Soybeans, Canned, Yellow (1/2 cup)	150	13	7	11	3	-	-	-	-	-	-	-	-	3	140	-	-
*Soybeans, Canned, Black (1/2 cup)	120	11	6	8	7	-	-	-	-	-	-	-	-	1	30	-	-
*Soybeans, Green in pod (1/2 cup)	100	8	3	8	1	-	-	-	-	-	-	-	-	1	10	-	-
*Soybeans, Green bean (2/3 cup)	105	9.5	4	10	8	-	-	-	-	-	-	-	-	2	3.5	-	-
*Soybeans, Roasted (1/4 cup)	136	10	6	8	5	-	-	-	-	-	-	-	-	1	24	-	-
Soymilk (1 cup)	120	9.19	5.1	11.3	3.2	10	1.4	.05	.39	.17	.36	0	5	-	29	120	345
*Soynut Butter (2 Tbs)	170	8	11.6	9.8	3	-	-	-	-	-	-	-	-	2.8	113	-	-
Tempeh (1 cup)	320	30.6	17.9	15.6	-	184	4.48	1.89	.129	.59	4.3	.357	40	-	15	442	684
Tofu, Firm, Water-packed (1/2 cup)	97	10	5.6	3.7	.5	204	1.8	1.27	.11	.13	.01	.07	42	.7	10	185	222
Tofu, Firm, Silken (1 slice)	52	5.8	2.3	2.0	.1	27	0.87	.51	.08	.03	.20	.0	-	1.0	30	76	163

Source unless specified: Nutrient Database Laboratory, USDA Food Composition Data, USDA. Web Site: [www.nal.usda.gov/fnic/cgi-bin/nut\\_search.pl](http://www.nal.usda.gov/fnic/cgi-bin/nut_search.pl)

\* Information taken from commercial product nutrition facts label on package. Saturated fat is not listed because most soy-based products have insignificant amounts of saturated fat. (-) Information not available on nutrition label or USDA database.



## Soy Resources

### Books

- *Soybeans, Chemistry, Technology, and Utilization*, by KeShun Liu
- *The Simple Soybean and Your Health*, by Mark Messina and Virginia Messina
- From the Illinois Center for Soy Foods, Barbara Klein, Editor
  - *Soy on the Menu: Recipes for Food Service*
  - *Textured Vegetable Protein in the American Kitchen*
  - *Tofu in the American Kitchen*
  - *Around the World with Soy*
  - *Soy for the Last Minute Chef*
  - *Baking with Soy*
- *The Book of Tofu*, by William Shurtleff
- *The Soy Zone*, by Barry Sears Ph.D.
- *The World of Soy*, by Christine M. Du Bois (Editor), Chee-Beng Tan (Editor), Sidney Mintz

### Web Sites

- [www.soybean.org](http://www.soybean.org)
- United Soybean Board - [www.soyconnection.com](http://www.soyconnection.com)
- Stratsoy (University of Illinois) - [www.stratsoy.uiuc.edu/expert/askhealth.html](http://www.stratsoy.uiuc.edu/expert/askhealth.html)
- Soyfoods Association of North America - [www.soyfoods.org](http://www.soyfoods.org)
- Illinois Center for Soy Foods - [www.soyfoodsillinois.uiuc.edu](http://www.soyfoodsillinois.uiuc.edu)
- Soy Isoflavone Database - [www.nal.usda.gov/fnic/foodcomp/Data/isoflav/isoflav.html](http://www.nal.usda.gov/fnic/foodcomp/Data/isoflav/isoflav.html)
- Iowa Soyfoods Council - [www.thesoyfoodsouncil.com/](http://www.thesoyfoodsouncil.com/)
- Michigan Soybean Promotion Committee - [www.michigansoybean.org](http://www.michigansoybean.org)
- Missouri Soybean Council - [www.mosoy.org](http://www.mosoy.org)
- Nebraska Soybean Board - [www.nebraskasoybeans.org](http://www.nebraskasoybeans.org)
- North Dakota Soybean Council - [www.ndsoybean.org](http://www.ndsoybean.org)
- Ohio Soybean Council - [www.soyohio.org](http://www.soyohio.org)
- South Dakota Soybean Research & Promotion Council - [www.sdsoybean.org](http://www.sdsoybean.org)

### Soy Newsletters

- Soy Connection newsletter on soy health/nutrition - [www.soyconnection.com](http://www.soyconnection.com)

### Soy Research, Health

- Soy/Health Fact Sheets: [www.soyconnection.com](http://www.soyconnection.com)

## Soyfood Protein & Isoflavone Content

Soyfood	Serving Size	Total grams soy protein/serving	Total milligrams (mg) isoflavone/serving
Miso	1 Tablespoon	2	7
Soybeans, Green, Cooked	1/2 cup	11	50
Soybeans, Black, Cooked	1/2 cup	9	40
Soybeans, Yellow, Cooked	1/2 cup	14	78
Soybeans, Roasted, Plain	1/4 cup	15	78
Soymilk, Plain, Unfortified	1 cup	7	10
Soymilk, Plain, Fortified	1 cup	10	43
Soy Flour, Defatted	1/4 cup	12	42
Soy Flour, Full-Fat	1/4 cup	8	33
Soy Flour, Low-Fat	1/4 cup	11	50
Soy Crumbles, Meat Alternative	1/2 cup	11	9
Soy Protein Isolate Powder, Plain	1/3 cup	23	53
Textured Soy Protein, Dry	1/4 cup	11	33
Tempeh	1/2 cup	16	53
Tofu	1/2 cup	10	25

Source: Soyfoods Association of America, *Soyfood Facts*, [www.soyfoods.org](http://www.soyfoods.org)

Soy protein and isoflavone levels may vary with products based on manufacturing process and the source of soy protein. Additional information on soyfood isoflavone content can be found at: Soy Isoflavone Database - [www.nal.usda.gov/fnic/foodcomp/Data/isoflav/isoflav.html](http://www.nal.usda.gov/fnic/foodcomp/Data/isoflav/isoflav.html)

## How Does Your Garden Grow?

Want to try growing your own soybeans in the garden? Edamame, large soybeans that are harvested when the beans are still green and sweet tasting, are easy to grow in your garden. They like full sun and are adaptable to most soil types. They are ready to harvest in 65 to 90 days, and planting seeds every week or so will let you fresh soybeans throughout the summer. Edamame is best—from both a flavor and nutrition standpoint—if eaten soon after picking. Edamame is a delicious, healthy snack. Because it is something you can eat with your fingers and its flavor has a light sweetness blended with a nutty taste, edamame appeals to children and adults alike. Boil the freshly picked pods for about ten minutes in salted water. Drain the pods and serve them heaped in an attractive bowl. They are equally delectable as finger food whether served slightly warm from cooking, at room temperature, or lightly chilled. Hold the pod and gently push the beans out of the pod, pop them into your mouth, and enjoy their sweet, nutty flavor. For more information about how to grow soybeans in your garden and a list of edamame varieties, visit the National Garden Bureau's Web site at: [www.ngb.org](http://www.ngb.org).



### Soy Flour (50% protein)

Soy flour is made from roasted soybeans ground into a fine powder. All soy flour gives a protein boost to recipes. Soy flour is 50 percent protein. However, defatted soy flour is an even more concentrated source of protein than is full-fat soy flour. Soy flour is gluten-free, so yeast-raised breads made with soy flour are more dense in texture. There are three kinds of soy flour available: Natural or full-fat, which contains the natural oils found in the soybean; defatted, which has the oils removed during processing; and lecithinated, which has had lecithin added to it.

### Hydrolyzed Vegetable Protein (HVP)

Hydrolyzed vegetable protein (HVP) is a protein obtained from any vegetable, including soybeans. HVP is a flavor enhancer that can be used in soups, broths, sauces, gravies, flavoring and spice blends, canned and frozen vegetables, meats, and poultry.

### Lecithin

Extracted from soybean oil, lecithin is used in food manufacturing as an emulsifier in products high in fats and oils. It also promotes stabilization, antioxidation, crystallization, and spattering control.



### Soy Protein, Textured (Flour or Concentrate)

Textured soy protein usually refers to products made from textured soy flour and textured soy protein concentrates. Textured soy flour is made by running defatted soy flour through an extrusion cooker, which allows for many different forms and sizes. It contains 50 percent protein as well as the dietary fiber and soluble carbohydrates from the soybean. When hydrated, it has a chewy texture. It is widely used as a meat extender. Often referred to simply as textured soy protein, textured soy flour is sold dried in granular and chunk style and is bland in flavor. Textured soy protein concentrates are made by extrusion and are found in many different forms and sizes. Textured soy protein concentrates contain 70 percent protein as well as the dietary fiber from the soybean. When hydrated, they have a chewy texture and contribute to the texture of meat products.

### Soy Grits

Soy grits are similar to soy flour except that the soybeans have been toasted and cracked into coarse pieces rather than the fine powder of soy flour. Soy grits can be used as a substitute for flour in some recipes. High in protein, soy grits can be added to rice and other grains and cooked together.



### Soy Protein Isolate (Isolated Soy Protein) (90% protein)

When protein is removed from defatted flakes, the result is soy protein isolate, the most highly refined soy protein. Containing 90 percent protein, soy protein isolates possess the greatest amount of protein of all soy products. They are a highly digestible source of amino acids (building blocks of protein necessary for human growth and maintenance). Isolates are bland in flavor.

### Soy Protein Concentrate (70% protein)

Soy protein concentrate comes from defatted soy flakes. It contains 70 percent protein while retaining most of the bean's dietary fiber. It is a highly digestible source of amino acids and is bland in flavor.

### Soy Fiber (Okara, Soy Bran, Soy Isolate Fiber)

There are three basic types of soy fiber: okara, soy bran, and soy isolate fiber. All of these products are high-quality, inexpensive sources of dietary fiber. Soy bran is made from hulls (the outer covering of the soybean), which are removed during initial processing. The hulls contain a fibrous material that can be extracted and then refined for use as a food ingredient. Soy isolate fiber, also known as structured protein fiber (SPF), is soy protein isolate in a fibrous form.



### Soybean Oil & Products

Soybean oil, also referred to as soyoil, is the natural oil extracted from whole soybeans. It is the most widely used oil in the United States, accounting for more than 75 percent of our total vegetable fats and oils intake. Oil sold in the grocery store under the generic name "vegetable oil" is usually 100 percent soybean oil or a blend of soybean oil and other oils. Read the label to make certain you're buying soybean oil. Soybean oil is cholesterol free and high in polyunsaturated fat. Soybean oil also is used to make margarine and shortening.



### Green Vegetable Soybeans (Edamame)

These large soybeans are harvested when the beans are still green and sweet tasting and can be served as a snack or a main vegetable dish after boiling in slightly salted water for 15-20 minutes. They are high in protein and fiber and contain no cholesterol. Green soybeans are sold frozen in the pod and shelled.

### Natto

Natto is made of fermented, cooked whole soybeans. Because the fermentation process breaks down the beans' complex proteins, natto is more easily digested than whole soybeans. It has a sticky, viscous coating with a cheesy texture. In Asian countries natto traditionally is served as a topping for rice, in miso soups, and is used with vegetables. Natto can be found in Asian and natural food stores.

### Okara

Okara is a pulp fiber by-product of soymilk. It has less protein than whole soybeans, but the protein remaining is of high quality. Okara tastes similar to coconut and can be baked or added as fiber to granola and cookies. Okara also has been made into sausage.



### Miso

Miso is a rich, salty condiment that characterizes the essence of Japanese cooking. The Japanese make miso soup and use it to flavor a variety of foods. A smooth paste, miso is made from soybeans and a grain such as rice, plus salt and a mold culture, and then aged in cedar vats for one to three years. Miso should be refrigerated. Use miso to flavor soups, sauces, dressings, marinades, and pâtés.

### Soybeans

As soybeans mature in the pod, they ripen into a hard, dry bean. Although most soybeans are yellow, there are also brown and black varieties. Whole soybeans (an excellent source of protein and dietary fiber) can be cooked and used in sauces, stews, and soups. Whole soybeans that have been soaked can be roasted for snacks. Dry whole soybeans should be cooked before eaten.

### Soynuts

Roasted soynuts are whole soybeans that have been soaked in water and then baked until browned. Soynuts can be found in a variety of flavors, including chocolate covered. High in protein and isoflavones, soynuts are similar in texture and flavor to peanuts.



### Soymilk

Soybeans soaked, ground fine, and strained produce a fluid called soybean milk. Plain, unfortified soymilk is an excellent source of high-quality protein and B vitamins. Soymilk is most commonly found in aseptic containers (nonrefrigerated, shelf stable), but also can be found in quart and half-gallon containers in the dairy case at the supermarket. Soymilk is also sold as a powder that must be mixed with water.

### Soy Sauce (Tamari, Shoyu, Teriyaki)

Soy sauce is a dark-brown liquid made from soybeans that has undergone a fermenting process. Soy sauces have a salty taste, but are lower in sodium than traditional table salt. Specific types of soy sauce are shoyu, tamari, and teriyaki. Shoyu is a blend of soybeans and wheat. Tamari is made only from soybeans and is a by-product of making miso. Teriyaki sauce can be thicker than other types of soy sauce and includes other ingredients such as sugar, vinegar, and spices.

### Soy Sprouts

Although not as popular as mung bean sprouts or alfalfa sprouts, soy sprouts (also called soybean sprouts) are an excellent source of nutrition, packed with protein and vitamin C.



### Tofu & Tofu Products

Tofu, also known as soybean curd, is a soft, cheese-like food made by curdling fresh, hot soymilk with a coagulant. Tofu is a bland product that easily absorbs the flavors of other ingredients with which it is cooked. Tofu is rich in both high-quality protein and B vitamins and is low in sodium. Firm tofu is dense and solid and can be cubed and served in soups, stir fried, or grilled. Firm tofu is higher in protein, fat, and calcium than other forms of tofu. Soft tofu is good for recipes that call for blended tofu. Silken tofu is a creamy product and can be used as a replacement for sour cream in many dip recipes.

### Tempeh

Tempeh, a traditional Indonesian food, is a chunky, tender soybean cake. Whole soybeans, sometimes mixed with another grain such as rice or millet, are fermented into a rich cake of soybeans with a smoky or nutty flavor. Tempeh can be marinated and grilled and added to soups, casseroles, or chili.

### Yuba

Yuba is made by lifting and drying the thin layer formed on the surface of cooling hot soymilk. It has a high-protein content and is commonly sold fresh, half-dried, and as dried bean curd sheets. Found in Asian food stores.



## Soy-Based Foods



### Soy Protein Products (Meat Analogs)

Protein products made from soybeans contain soy protein or tofu and other ingredients mixed together to make a protein product. These protein products are sold as frozen, canned, or dried foods. Usually, they can be used the same way as the foods they replace. With so many different protein products available to consumers, the nutritional value of these foods varies considerably. Generally, they are lower in fat, but read the label to be certain. Protein products made from soybeans are excellent sources of protein, iron, and B vitamins.

### Soy Beverages

Soy beverages can be made with soymilk or isolated soy protein. Flavorings or fruit juices may be added. They can be purchased ready to drink or in a dry-powder form to which liquid is added.



### Soy Cheese

Soy cheese is made from soymilk. Its creamy texture makes it an easy substitute for most cheeses, sour cream, or cream cheese and can be found in a variety of flavors. Products made with soy cheese include soy pizza.

### Whipped Toppings, Soy-Based

Soy-based whipped toppings are similar to other nondairy whipped toppings, except that hydrogenated soybean oil is used instead of other vegetable oils.

### Infant Formulas, Soy-Based

Soy-based infant formulas are similar to other infant formulas except that a soy protein isolate powder is used as a base. Carbohydrates and fats are added to achieve a fluid similar to breast milk. The American Academy of Pediatrics says that for term infants whose nutritional needs are not being met from maternal breast milk or cow milk-based formulas, isolated soy protein-based formulas are safe and effective alternatives to provide appropriate nutrition for normal growth and development.



### Soynut Butter

Made from roasted, whole soynuts, which are then crushed and blended with soybean oil and other ingredients, soynut butter has a slightly nutty taste, significantly less fat than peanut butter, and provides many other nutritional benefits as well.

### Soy Yogurt

Soy yogurt is made from soymilk. Its creamy texture makes it an easy substitute for sour cream or cream cheese. Soy yogurt can be found in a variety of flavors in natural food stores.



### Nondairy Soy Frozen Desserts

Nondairy frozen desserts are made from soymilk or soy yogurt. Soy ice cream is one of the most popular desserts made from soybeans.

### Whole Soybeans (dry, canned, green)

Soybeans belong to the legume family and are native to East Asia. Soybeans can be purchased as dry whole soybeans, canned yellow or black soybeans, and green (fresh or frozen) and shelled or in the pod.

#### Green Soybeans (Fresh, Frozen)

Green vegetable soybeans (also called edamame) are harvested at 80 percent maturity. Edamame soybeans are a special bean variety that are bigger and sweeter than traditional soybeans grown in fields by most farmers. Cooked and lightly salted, these little green beans are a popular snack in Asia. These beans are often sold in the freezer section of natural food stores and should be stored in the freezer. Fresh beans, purchased still in the pod, should be cooked and stored in the refrigerator.

#### Whole, Dry Soybeans

Soybeans are harvested when they are fully mature and dry. As soybeans mature in the pod, they ripen into a hard, dry bean. Whole, dry soybeans can be found in grocery and health food stores.

Most soybeans grown in fields by farmers are smaller than food-grade beans used to make tofu and soymilk. Field beans may be cleaned and used in recipes after they have been soaked and cooked.

Do not eat soybeans raw. Soybeans must be cooked to destroy the protease inhibitor found in soybeans. Heat treatment is necessary to decrease the activity of the inhibitors and improve the digestibility of the proteins.

#### Storing

Dry soybeans can be stored in an airtight container for long periods of time. Cooked soybeans, both yellow and black, are available in cans in natural food stores.

#### Cooking Tips

- Do not add salt or acidic ingredients (such as tomatoes, lemon juice, or vinegar) to yellow soybeans until they are thoroughly cooked. Acidic products delay the softening process. However, you may add these when cooking black soybeans to help them retain their shape.
- One 15-ounce can of white or black soybeans is equal to 1 1/2 cups of cooked soybeans.
- Substitute canned soybeans (white or black) in your favorite recipes that call for beans.
- Substitute green cooked soybeans in recipes that call for green peas or beans.

#### Cooking Dry Soybeans

- Soak soybeans in 4 cups of water for each cup of beans for 8 hours or overnight. If you soak beans longer than 8 hours, place them in the refrigerator.
- Drain and rinse the beans, then add 4 cups of fresh water for each cup of beans you started with.
- Bring to a boil, reduce heat, and skim off excess foam. Simmer about 3 hours, adding more water as needed, until beans are tender. They will remain somewhat firm compared to cooked navy beans.

Yield: 1 cup dry beans = 2-3 cups cooked beans.

#### Pressure Cooker Method

- Place presoaked (8-12 hours soaked), drained, and rinsed beans in a pressure cooker.
- Add 4 cups of water plus 2 tablespoons of cooking oil for the first cup of beans, and 3 cups of water and 2 tablespoons of vegetable oil for each additional cup of beans (oil controls foaming).
- Do not fill the cooker above the halfway mark! Cook with fifteen pounds of pressure for 9 to 12 minutes.
- Quickly release pressure by placing cooker under cold running water.
- Drain immediately.



### Tofu Fingers

- 1 Tofu, extra firm (12 oz. to 14 oz package)
- 1/2 cup bread crumbs, dried
- 1/2 tsp garlic powder
- 1/2 tsp salt
- 1/8 tsp ground black pepper
- 1 egg, beaten
- 2 Tbs milk
- 2 Tbs soybean oil

#### Assorted dipping sauces

Cut tofu into twelve, 1x1x3-inch pieces. Place pieces on paper towel to drain. Mix bread crumbs, garlic powder, salt and pepper in medium bowl. Beat egg and milk together in small bowl. Dip tofu in egg mixture. Place tofu in bread crumb mixture, turning to coat all sides.

Heat oil in large frying pan over medium high heat. Add tofu, reduce heat and cook 1 1/2 to 2 minutes on each side until golden brown. Serve with dipping sauces.

*Yield: 4 servings. Per 3 finger serving: 191 calories 191, 11g fat (2g sat fat), 55 mg cholesterol, 470 mg sodium, 12 g carbohydrate, 10 g protein (7 g soy protein), 1g dietary fiber.*

Dipping sauce suggestions: honey mustard, sweet & sour, barbecue, sweet chili, ketchup and ranch dressing.

*Soy smoothies and shakes are easy to make, and it's fun to create your own recipes. A little soymilk and some fruit mixed in a blender will get you off and running. Add a few more secret ingredients and you will create your own masterpiece. Here are few recipes to get you started.*



### Strawberry Delight

- 1/2 cup frozen strawberries, thawed, including juice
- 2 Tbs powdered soy protein isolate
- 2 Tbs water
- 1/2 cup crushed ice

Thoroughly mix thawed strawberries, soy protein isolate and water in blender. Add crushed ice and blend until smooth. Serve in a 12-ounce glass.

*Yield: 1 serving. Per serving: 62 calories, 0.4 g fat (0 g saturated fat), 0 mg cholesterol, 113 mg sodium, 7 g carbohydrate, 25 g protein (23 g soy protein), 1.2 g dietary fiber.*

### Purple Power Shake

- 1 cup vanilla soymilk
- 1 cup firm tofu (about 6 oz.)
- 3/4 cup fresh or frozen, unthawed blueberries
- 1 tsp almond extract
- 2 scoops soy protein powder (1 scoop is about 3 Tbs)

Place all ingredients in blender and mix on high until thoroughly blended and mixture is smooth and creamy. Serve immediately or refrigerate.

*Yield: 2 1/2 cups. Serving size: 1 1/4 cups. Per serving: 232 calories, 5 g fat (0.5 g sat fat), 0 mg cholesterol, 195 mg sodium, 25 g carbohydrate, 21 g protein (19 g soy protein), 1.5 g dietary fiber.*



### Coffee Chococcino

- 2 cups chocolate soymilk
- 4 to 6 tsp\* instant espresso powder

Microwave soymilk and espresso powder in medium uncovered microwave safe container on high for 2 minutes until very hot.

Carefully pour mixture into blender. Cover and hold down lid with folded towel or pot holder. Blend all ingredients on high for 30 seconds or until very frothy. Pour into two 12-ounce coffee mugs. Sprinkle with espresso powder, if desired.

\*for a more intense coffee flavor, add 6 teaspoons espresso powder

*Per 1 cup serving: 140 calories, 3.5 g fat (0 g sat fat), 0 mg cholesterol, 75 mg sodium, 24 g carbohydrate, 5 g protein (5 g soy protein), 0 g dietary fiber.*

Tip: Use light chocolate soymilk to eliminate an additional 2 grams of fat and 20 calories, for a total of 120 calories and 1.5 grams of fat per serving.

### Protein power tips...

*Add a box of silken soft tofu in blender to smoothie recipes.  
Add soy protein isolate powder to favorite smoothie recipe.*

## Soymilk

Soymilk is the rich, creamy milk of whole soybeans. It is lactose-free and casein-free. Soymilk is available in regular and low-fat varieties, and some brands are fortified with calcium, vitamin D, and/or vitamin B-12. Soymilk comes in plain, vanilla, chocolate, and strawberry flavors. The color of plain soymilk varies from tan to white. Note that soymilk is not the same as soy infant formula.

### Storing Soymilk

Soymilk is found in aseptic (non-refrigerated) containers, and in refrigerated plastic or cardboard quart and half-gallon containers. Unopened, aseptically packaged soymilk can be stored at room temperature for several months. Once it is opened, soymilk must be refrigerated. It will stay fresh for about five days. Soymilk also is sold as a powder, which must be mixed with water. Soymilk powder should be stored in the refrigerator or freezer.

### Cooking Basics

Soymilk may be consumed as a beverage or substituted for dairy milk in most recipes. Culinary chefs prefer cooking with whole soymilk versus "non-fat" or "light" forms to provide firmer consistency in cooked dishes such as puddings and custards.

### Soymilk Tips

Soymilk can be used in almost any way that cow's milk is used.

- Use soymilk to make cream sauces that are cholesterol-free and low in saturated fat.
- Make rich pancake and waffle mixes.
- Create your own delicious shakes with soymilk, soy ice cream or tofu, soy yogurt, and fruit.
- Use soymilk to make cream soups.
- Try soymilk instead of evaporated milk to produce lower-fat custards and pumpkin pies.
- Mix 1 teaspoon of your favorite powdered fruit drink mix with 1 cup of soymilk for a refreshing drink.



## Soy Flour

Soy flour is made from roasted soybeans that have been ground into a fine powder. Two kinds of soy flour are available. Full-fat soy flour contains the natural oils that are found in the soybean. Defatted soy flour has the oils removed during processing. Both kinds of soy flour will give a protein boost to recipes; however, defatted soy flour is even more concentrated in protein than full-fat soy flour.

### Storing

Full-fat soy flour should be stored in the refrigerator or freezer to preserve its freshness. Defatted soy flour may be stored on the shelf.

### Cooking Basics

Soy flour tends to pack down in a container, so always stir or sift it before measuring. Baked products containing soy flour tend to brown more quickly, so you may want to lower oven temperatures slightly.

### Substituting Soy Flour

Since soy flour is free of gluten, which gives structure to yeast-raised breads, soy flour cannot replace all of the wheat or rye flour in a bread recipe. However, using about 15 percent soy flour in a recipe produces a dense bread with a nutty flavor and a wonderful moist quality.

Just place two tablespoons of soy flour in your measuring cup for every cup of wheat flour before measuring all-purpose or other flour called for in the recipe.

In baked products, such as quick breads, that are not yeast-raised, up to 1/4 of the total amount of flour called for in the recipe can be replaced with soy flour. For each cup of flour called for, use 1/4 cup soy flour and 3/4 cup wheat flour (all-purpose or whole wheat).

### Soy Flour Tips

- In your own kitchen, use soy flour to thicken gravies and cream sauces, to make homemade soymilk, or to be added to a variety of baked foods.
- Premix a batch of 1 part soy flour and 3 parts wheat flour so that it is ready to use when you bake.

## Honey Wheat Bread

(From *Baking with Soy*, National Soybean Research Laboratory)

Honey and cinnamon add a delightful flavor to this bread that is easily made in a bread machine. If you don't have a bread machine, adapt directions for a hand-kneaded bread recipe to get the same results.

- 3 cups whole wheat flour
- 1/2 cup soy flour
- 1 1/2 tsp cinnamon
- 1/2 tsp salt
- 1 1/4 cups plus 2 Tbs warm water
- 1/4 cup honey
- 1 egg white or 1 small egg
- 2 Tbs oil
- 1 package (1/4 oz) or 2 1/2 tsp active dry yeast



Place ingredients in the bread machine in the order specified by the manufacturer. Set the machine for the regular cycle and light crust. Start the machine.

*Yield: 1 loaf of 16 slices. Per slice: 136 calories, 3 g fat (0.3 g sat fat), 0 g cholesterol, 75 mg sodium, 22 g carbohydrate, 5 g protein (1 gram soy protein), 1 g dietary fiber.*

Provided by the National Soybean Research Laboratory, Illinois Center for Soy Foods at the University of Illinois at Urbana-Champaign  
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## Applesauce Cake

- 1 3/4 cups sugar
- 1 1/2 cups unbleached flour
- 1 cup soy flour
- 1/4 tsp baking powder
- 1 1/2 tsp baking soda
- 1 1/2 tsp salt
- 1 tsp cinnamon
- 1/2 tsp cloves
- 1/2 tsp allspice
- 1/2 tsp nutmeg
- 2 cups applesauce
- 1/2 cup vegetable oil
- 1/2 cup soft tofu
- 1 cup raisins, chopped

Preheat the oven to 350°F. In a large bowl, combine the sugar, unbleached flour, soy flour, baking soda, salt, cinnamon, cloves, allspice, nutmeg, and baking powder; mix thoroughly. Add the applesauce and vegetable oil; mix well, then beat about 300 strokes.

In a small bowl, mash the tofu until creamy; add to the batter. Beat the batter about 300 strokes. Fold the raisins into the batter. Pour the batter into a 9-by-13-inch nonstick baking pan. Bake for 45-50 minutes. Cool before serving.

*Yield: 18 1/2 cup servings. Per serving: 240 calories; 7 g fat (0.3 g sat fat), 0 g cholesterol, 80 mg sodium, 44 grams carbohydrate, 2 g protein (1.5 g soy protein), 2 g dietary fiber.*

## Blueberry Pancakes

- 1 1/2 cups soy flour
- 2 1/4 cups all purpose flour
- 3 Tbs plus 1 tsp baking powder
- 1/4 cup sugar
- 1 1/2 tsp salt
- 3 eggs
- 3 cups vanilla soymilk
- 4 Tbs vegetable oil
- 2 cups fresh or frozen (not thawed) blueberries

Mix all ingredients until moistened. Spray skillet or griddle with non-stick cooking spray. Skillet heat should be medium high; griddle heat 350°F. Pour 1/2 cup pancake batter on griddle for each pancake. When top bubbles, flip to other side. Cook until done throughout.

*Yield: 12 large pancakes. Serving size: 1 pancake. Per serving: 252 calories, 9 g fat (1 g sat fat), 53 mg cholesterol, 622 mg sodium, 36 g carbohydrate, 9 g protein (4 g soy protein), 3 g dietary fiber.*

## Zesty Corn Muffins

- 3/4 cup flour
- 1/4 cup soy flour
- 1 cup yellow cornmeal
- 2 Tbs sugar
- 4 tsp baking powder
- 1 tsp salt
- 1 cup buttermilk
- 1/4 cup soybean oil
- 2 eggs, slightly beaten
- 1/2 cup shredded cheddar cheese
- 1/4 cup chopped green chiles

Preheat oven to 425° F. Spray muffin pans with non-stick spray. In medium bowl, combine first five ingredients. Stir together buttermilk, soyoil and eggs, and add to dry ingredients. Gently stir in cheese and green chilies. Pour into muffin pan. Bake for 22 to 25 minutes.

*Yield: 12 muffins. Per muffin: 165 calories, 7 g fat (2 g sat fat), 33 mg cholesterol, 383 mg sodium, 17 g carbohydrate, 5 g protein (1.5 g soy protein), 1.5 g dietary fiber.*

## Hot and Sour Soup

(From *Around the World with Soy*, National Soybean Research Laboratory)

Popular in China, hot and sour soup is a rich and warmly satisfying dish. The contrast between the hot (red pepper flakes) and sour (rice vinegar) tingles the taste buds in a delightful way.

- 1 Tbs vegetable oil
- ½ cup minced onion
- 1 tsp crushed red pepper flakes
- 1 Tbs minced fresh ginger
- 4 cups vegetable or chicken stock
- 1 cup julienne slices of shiitake mushrooms, stems discarded and caps sliced into strips
- 1 tsp white or black pepper
- 2 Tbs soy sauce
- 1 Tbs rice vinegar
- 2 Tbs cornstarch dissolved in 2 Tbs cold water
- ½ pkg (7 oz) firm tofu, drained and cubed or sliced into strips
- 1 can (8 oz) bamboo shoots, sliced into ¼" strips
- 2 eggs, beaten
- 2 tsp dark sesame oil
- 4-5 green onions, chopped

Heat the vegetable oil in a large pot and sauté the onion, crushed red pepper flakes, and minced ginger until the onion starts to brown.

Add the stock, mushrooms, pepper, soy sauce, and rice vinegar; bring to a boil. Stir in the dissolved cornstarch to thicken the soup, then reduce heat to a gentle simmer.

Stir in the cubed tofu and bamboo shoots. When the mixture returns to a simmer, pour the eggs into the soup in a thin, steady stream while gently stirring the soup. Add the sesame oil and green onion, simmer to heat through, and serve.

*Yield: 6 cups. Per 1 cup serving: 134 calories, 8 g fat (1.4 g sat fat), 70 g cholesterol, 470 mg sodium, 9 g carbohydrate, 8 g protein (4 g soy protein), 2 g dietary fiber.*



## Creamy Pumpkin Curry Soup

- 1 Tbs soybean oil
- 1 small onion, diced
- 1 package (16 oz) silken tofu, drained
- 1 can (15 oz) pumpkin puree
- 1 medium apple, peeled, cored and sliced
- 2 cups low sodium vegetable or chicken broth
- 1 tsp curry powder (or to taste)
- ¾ tsp ground black pepper
- ¾ tsp salt
- ¼ cup toasted pumpkin seeds (optional)

Heat soybean oil in medium saucepan over medium heat. Add onions and cook for 2 to 3 minutes until soft.

Place onions, tofu, pumpkin, apple, broth, curry powder, pepper and salt in blender. Puree for 1 minute until smooth.

Return mixture to saucepan. Heat over medium heat, stirring occasionally, until soup begins to gently simmer. Do not boil. Ladle into bowls; top with pumpkin seeds, if desired.

*Yield: 8 servings. Per 1 cup serving: Calories 90, 3.5 g fat (0 g sat fat), 0 mg cholesterol, 360 mg sodium, 11 g carbohydrate, 5 g protein (4 g soy protein), 3 g dietary fiber.*

## Protein Power Tip:

Add a serving of plain soy protein isolate to your favorite soup. Remove a small amount of hot soup and blend it with the isolate powder. Add the mixture to the soup.

## Soy Protein Powder

If you want to get the most soy protein per serving in your meals, then try adding some soy protein isolate powder in your favorite recipes.

Soy protein isolate is a dry powder food ingredient that is made from defatted soy flakes. Containing 90 percent protein, soy protein isolates possess the greatest amount of protein and all the essential amino acids of all soy products.

Soy protein isolate powder is sold in canisters in health food sections of stores. It's often labeled as "soy protein powder drink mix."

### Storing

Kept sealed and dry, it is shelf-stable for many months. Look for use-by dates on the container.

### Recipe Ideas

- Read the nutrition label of your soy protein powder for the protein level/serving.
- Whisk a serving of plain soy protein isolate powder into cooked Marinara sauce or your favorite sauces.
- Mix a serving of flavored soy protein shake powder with cold juice, milk, or soymilk.
- Mix a serving of soy protein powder into your favorite hot cereal.
- Try mixing soy protein powder to your favorite salad dressings for extra protein kick.

### Protein Power Drinks

Most of the soy protein powder drinks on the market are made with soy protein isolate.

Soy protein powders come in plain, vanilla, chocolate, and strawberry flavors.

Many brands are sold in canisters with expiration dates stamped on the bottom. Several brands are fortified with calcium.

## Soy Protein Products

Soy protein products (also called meat analogs) are foods made from soy protein and other ingredients mixed together. Food scientists know how to make these products taste quite good.

### Where to Find

Look for soy protein products in grocery stores in the following locations:

- Refrigerated case
- Freezer case
- Dry, prepared foods

### Storing

Frozen or refrigerated soy protein products should be stored accordingly at home. Others come in dry-mix boxes and may be stored on the shelf.

### Cooking Basics

Follow package directions. Soy protein products can be included in many of your favorite recipes.

### Recipe Tips

- Soy protein products can usually be used the same way as many of the traditional foods you use.
- Using soy protein products in highly seasoned dishes, such as tacos, minimizes the flavor difference between them and other protein products.
- Use a package of soy crumbles for when preparing your favorite spaghetti, sloppy joe, chili, stroganoff, or hamburger casserole recipes.

## Tuna Edamame Salad

- 1 cup edamame, cooked according to package directions
- 1 cup cherry tomatoes, halved
- 1 cup shredded carrots
- 1 can (6 oz) tuna, water packed, drained
- 1/2 cup golden raisins
- 1/4 cup diced red onion
- 1/4 cup bottled reduced-fat Italian salad dressing
- Pita bread or whole wheat crackers, optional

Mix edamame, tomatoes, carrots, tuna, raisins and onion in medium bowl. Pour dressing over salad and toss until combined.

Serve with pita bread halves or whole grain crackers, if desired.



*Yield: 4 servings; per 1 cup serving:* calories 210, 3 g fat (0 g sat fat), 25 mg cholesterol, 350 mg sodium, 27 g

carbohydrate, 16 g protein (7 g soy protein), 4 g dietary fiber.

## Roasted Vegetable and Couscous Salad

- 3 cups broccoli florets, cut into 1/2-inch pieces
- 1 large red bell pepper, cut into 1-inch squares
- 1 1/2 cups (1/2 medium) red onion, peeled and cut into 1/4-inch slices
- 6 Tbs soybean oil, divided
- 1/2 tsp ground black pepper, divided
- 1/2 tsp salt, divided
- 1 1/2 cups dry giant Israeli couscous\*
- 2 Tbs balsamic vinegar

Preheat oven to 425° F.

Toss broccoli, peppers and onions with 2 tablespoons soybean oil and 1/4 teaspoon each salt and pepper. Place on foil-lined baking sheet.

Bake for 15 minutes until vegetables are tender and lightly browned.

Meanwhile, cook couscous according to package directions.

Place cooked couscous and roasted vegetables in large bowl. Pour vinegar and remaining soybean



oil over salad and sprinkle with remaining salt and pepper; toss lightly until combined. Serve warm or chilled.

\*You may substitute 3 cups cooked regular couscous, brown rice or quinoa.

*Yield: 6 servings. Per 1 cup serving:* 270 calories, 14 g fat (2 g sat fat), 0 mg cholesterol, 210 mg sodium, 31 g carbohydrate, 5 g protein (3.5 g soy protein), 3 g dietary fiber.





## Sweet and Sour Pork and Tofu

- 1 can (20 oz) pineapple chunks, packed in juice
- 3 Tbs ketchup
- 2 Tbs vinegar
- 2 Tbs reduced sodium soy sauce
- 1 Tbs corn starch
- 2 Tbs soybean oil, divided
- 1/4 lb lean pork loin, thinly sliced
- 1 package (14 oz) extra firm tofu, drained and cut into 1/2-inch cubes
- 4 cups broccoli florets, cut into 1/2-inch pieces
- 1 large red bell pepper, cut into 1-inch strips

Drain pineapple, reserving juice. Mix pineapple juice, ketchup, vinegar, soy sauce and corn starch in small bowl; set aside.

Heat 1 teaspoon oil in large non-stick frying pan over medium high heat. Add pork, stirring constantly, for 2 minutes until cooked through; remove from pan.

Add 2 teaspoons oil to pan. Add tofu and cook, stirring occasionally, for 5 minutes until lightly browned; remove from pan.

Add remaining oil, broccoli and peppers to pan. Cook, stirring constantly, until just tender. Pour pineapple juice mixture into pan. Cook, stirring constantly, for 1 minute until mixture begins to thicken slightly. Add tofu, pork and pineapple. Cook until heated through.

*Yield: 4 servings. Per 1 1/2 cup serving: 330 calories, 15 g fat (2.5 g sat fat), 15 mg cholesterol, 510 mg sodium, 30 g carbohydrate, 23 g protein (12 g soy protein), 5 g dietary fiber.*

## Textured Soy Protein

Textured soy protein is one of the most economical soy protein sources on the market. It's made from defatted soy flour or soy protein concentrate that is compressed and extruded into granules or chunks. It is sold as a dried, granular product. When rehydrated with water, textured soy protein has a texture similar to ground beef or other meat products. Textured soy protein is often labeled as TSP® or TVP®. TSP® is a registered trademark of PMS Foods. TVP® is a registered trademark of Archer Daniel Midlands.

### Where to Find

Textured soy protein is not always easy to find in the supermarket. It's normally carried in natural food stores in the bulk food area or the flour section. Because it is a dry product, you can find mail-order companies on the Internet that sell it.

### Storing

Textured soy protein has a long shelf life. Stored in a tightly closed container at room temperature, it will keep for several months. Once it has been rehydrated, store the textured soy protein in the refrigerator and use it within a few days.

### Cooking Basics

Most recipes call for textured soy protein to be rehydrated before it is used in recipes. Read the package directions for rehydration. When using textured soy protein in soups and sauces, you do not have to rehydrate it before use – just be sure the recipe has enough liquid in it. Textured soy protein chunks should be simmered a few minutes before using.

### Recipe Tips

- Use textured soy protein to replace all or part of the ground meat in almost any recipe. Replace one-fourth of the ground beef in meat loaf or burgers.
- Generally, textured soy protein will triple in volume when hydrated. For example, 1 pound dry textured soy protein will make about 3 pounds hydrated textured soy protein.
- For one pound of ground beef, substitute 1 1/2 cups dry textured soy protein and hydrate with 1 1/2 cups water.

## Tofu

Tofu is probably the most versatile soyfood to use in cooking. Also known as soybean curd, tofu is a soft, cheese-like food made by curdling fresh, hot soymilk with a coagulant. In recipes, tofu acts like a sponge and has the miraculous ability to soak up any flavor that is added to it.

### Types of Tofu

Two main types of tofu are available in American grocery stores.

Water-Packed (Extra-Firm, Firm) tofu is dense and solid and holds up well in stir-fry dishes, soups, or on the grill – anywhere that you want the tofu to maintain its shape. Water must be squeezed out before using.

Silken (Extra-Firm, Firm, Soft, Reduced Fat) tofu is made by a slightly different process that results in a creamy, custard-like product. Silken tofu works well in puréed or blended dishes.

### Storing Tofu

- Tofu most commonly is sold in water-filled tubs, vacuum packs, or in aseptic brick packages. Unless it is aseptically packaged, tofu should be kept cold. As with any perishable food, check the expiration date on the package. Once the tofu package is open, leftover tofu should be rinsed and covered with fresh water for storage. Change the water daily to keep it fresh, and use the tofu within a week.

- Tofu can be frozen up to five months. The texture will be spongy, chewy, and more meat-like. After thawing tofu in refrigerator, squeeze out excess water.

### Recipe Tips

- Replace all or part of the cream in creamed soups with silken soft tofu.
- Substitute puréed silken soft tofu for part of the mayonnaise, sour cream, cream cheese, or ricotta cheese in a recipe. Use it in dips and creamy salad dressings.
- Mix 1 box instant pudding mix, 1 1/2 cups soymilk, and 10 ounces of silken tofu for dessert. Chill for 2 hours.
- Crumble it into a pot of spicy chili sauce and it tastes like chili.
- Cubes of firm tofu can be added to any casserole or soup.
- Slices of extra-firm tofu can be baked on broiler pan at 375°F for 20-25 minutes. Marinate slices in your favorite sauce for extra flavor.
- Substitute 1/4 cup soft tofu for 1 egg in your favorite brownie box mix.

### Tofu Pressing

To reduce the amount of water in water-packed tofu, place the block of tofu on a pie plate or shallow dish. Stack another plate on top of the tofu. Add weight to the plate (use more dishes or canned goods) and wait 15-20 minutes; then pour off water.



## Infused Soybean Oils

Create flavorful gourmet infused oils with heart healthy soybean oil.

### Rosemary and Balsamic Infused Soybean Oil

Heat 1/2 cup soybean oil and six 2-inch sprigs fresh rosemary in small saucepan over low heat for 3 minutes. Remove from heat; cool for 1 hour. Add 1 tablespoon balsamic vinegar and 1/4 teaspoon sea salt. Serve immediately or refrigerate for up to one week. Makes 1/2 cup.

### Chili Garlic Infused Soybean Oil

Heat 1/2 cup soybean oil, 1 teaspoon red chili flakes and one clove crushed garlic in small saucepan over low heat for 3 minutes. Remove from heat; cool for 1 hour. Serve immediately or refrigerate for up to one week. Makes 1/2 cup.

### Cilantro and Green Onion Infused Soybean Oil

Pulse 1/2 cup soybean oil, 1/2 cup fresh cilantro leaves, 1/4 cup chopped green onions and 1/4 teaspoon salt in blender until smooth. Pour oil into fine-mesh sieve set over bowl to strain. Cover and refrigerate for up to one week. Makes 1/2 cup.

*Per 1 tablespoon serving: 120 calories, 14 g fat (2g sat fat), 0 mg cholesterol, 75 mg sodium, 0 g carbohydrate, 0 g protein, 0 g dietary fiber.*

### Key Lime Cheesecake

- 1 box (11 - 12 ounces) no-bake cheesecake mix
- 2 Tbs sugar
- 1/3 cup margarine, melted
- 1 package (12 ounces) silken firm tofu
- 5 Tbs fresh or bottled lime juice
- 2 Tbs fresh lime zest

Make crust with crumb mixture from cheesecake mix, sugar and melted margarine. Mix all ingredients in 9-inch pie plate until crumbs are well moistened. Press firmly against sides of pie plate first, using fingers or large spoon to shape edge. Press remaining crumbs firmly on bottom using hands or measuring cup.

Blend filling mixture with silken tofu, lime juice and lime zest in food processor or blender until smooth and creamy. Filling will be thick. Spoon into crust. Refrigerate at least one hour before cutting.

*Yield: 8 servings. Per serving: 290 calories, 14 g fat (4 g sat fat), 0 mg cholesterol, 411 mg sodium, 35 g carbohydrate, 6 g protein (4 g soy protein), 1 g dietary fiber.*

### Rich Chocolate Pie

- 1 package (12 ounces) firm silken tofu
- 1 package (12 ounces) soft silken tofu
- 1 package (12 ounces) semisweet chocolate chips
- 4 Tbs light corn syrup
- 1 9-inch chocolate cookie pie crust

Melt chocolate chips in microwave. Stir frequently to prevent burning. Stir in the corn syrup. Blend the tofu in a food processor or blender until smooth. Add the melted chocolate mixture to tofu and blend until creamy. Pour chocolate filling into pie crust. Chill at least 6 hours before serving.

*Yield: 8 slices. Per serving: 303 calories, 15 g fat (7 g sat fat), 0 mg cholesterol, 66 mg sodium, 43 g carbohydrate, 8 g protein (7 g soy protein).*



*Photo courtesy of University of Illinois photographer David Riecks*

### Pineapple Pie

(From Soy for the Last Minute Chef, National Soybean Research Laboratory)

This is a delightfully cool and smooth dessert treat that isn't too filling. Perfect for a spring luncheon or summer barbeque.

- 1 package (12.3 oz.) soft silken tofu
  - 1 package (3 oz.) pineapple-flavored gelatin (sugar-free is fine)
  - 1 cup boiling water
  - 1 can (8 oz.) crushed pineapple, drained
  - 1 10" prepared graham cracker crust\* or chocolate graham cracker crust
- Optional garnishes: maraschino cherries, blueberries, sliced mango, whipped topping

Purée the tofu in the blender. Put the gelatin in a bowl and add the boiling water. Stir until the gelatin is dissolved. Add the gelatin mixture to the tofu in the blender and blend well. Add the pineapple and blend until smooth.

Pour the mixture into the crust. Refrigerate until firm, about 4 hours. Just before serving, decorate the top with your choice of garnishes, if desired.

\* If you use a standard size 8" pie crust, you will have a bit less than one cup of filling left over. This is delicious poured into small custard cups and chilled for a refreshing snack.

*Yield: 10 servings. Per serving: 193 calories, 7 g fat (1.6 g sat fat), 0 mg cholesterol, 200 mg sodium, 29 g carbohydrate, 3 g protein (3 g soy protein), and 0 g dietary fiber.*

## Soy - For your heart

The Food and Drug Administration (FDA) says foods containing soy protein may reduce the risk of coronary heart disease (CHD). Foods that meet the FDA guidelines can label their products with this claim.

The soy health claim is based on the FDA's determination that 25 grams of soy protein per day, as part of a diet low in saturated fat and cholesterol, may reduce the risk of heart disease by reducing blood cholesterol levels.

To get the heart-healthy benefits of soy protein, the FDA recommends that consumers incorporate four servings of at least 6.25 grams of soy protein into their daily diet for a total of at least 25 grams of soy protein each day.

In order to claim the healthful effects of soy, a soyfood must meet the following criteria:

- 6.25 grams or more soy protein
- Low fat (less than 3 grams)
- Low saturated fat (less than 1 gram)
- Low cholesterol (less than 20 mg)

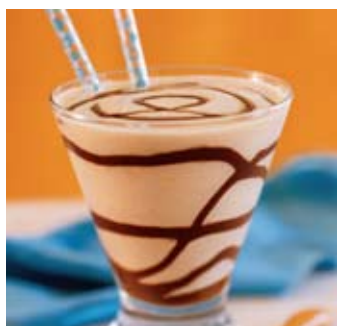
Foods made with the whole soybean may also qualify for the health claim if they contain no fat in addition to that present in the whole soybean. These would include soyfoods such as tofu, soymilk, soy-based burgers, tempeh, and soynuts.

New food product labels may now say, "Diets low in saturated fat and cholesterol that include 25 grams of soy protein a day may reduce the risk of heart disease. One serving of (name of food) provides \_\_\_\_ grams of soy protein."

For more information, go to [www.cfsan.fda.gov/~dms/fdsoypr.html](http://www.cfsan.fda.gov/~dms/fdsoypr.html).



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